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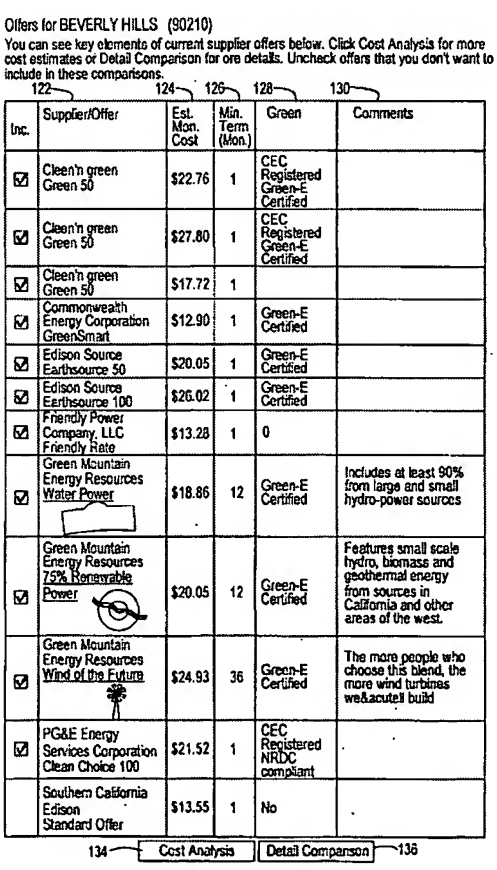
(54) Title: METHOD, APPARATUS AND SYSTEM FOR CALCULATING AND COMPARING ENERGY COSTS



Offers for BEVERLY HILLS (90210)

You can see key elements of current supplier offers below. Click Cost Analysis for more cost estimates or Detail Comparison for ore details. Uncheck offers that you don't want to include in these comparisons.

122 124 126 128 130

Inc.	Supplier/Offer	Est. Mon. Cost	Min. Term (Mon.)	Green	Comments
☑	Cleen'n green Green 50	$22.76	1	CEC Registered Green-E Certified	
☑	Cleen'n green Green 50	$27.80	1	CEC Registered Green-E Certified	
☑	Cleen'n green Green 50	$17.72	1		
☑	Commonwealth Energy Corporation GreenSmart	$12.90	1	Green-E Certified	
☑	Edison Source Earthsource 50	$20.05	1	Green-E Certified	
☑	Edison Source Earthsource 100	$26.02	1	Green-E Certified	
☑	Friendly Power Company, LLC Friendly Rate	$13.28	1	0	
☑	Green Mountain Energy Resources Water Power	$18.86	12	Green-E Certified	Includes at least 90% from large and small hydro-power sources
☑	Green Mountain Energy Resources 75% Renewable Power	$20.05	12	Green-E Certified	Features small scale hydro, biomass and geothermal energy from sources in California and other areas of the west.
☑	Green Mountain Energy Resources Wind of the Future	$24.93	36	Green-E Certified	The more people who choose this blend, the more wind turbines we&acutell build
☑	PG&E Energy Services Corporation Clean Choice 100	$21.52	1	CEC Registered NRDC compliant	
	Southern California Edison Standard Offer	$13.55	1	No	

134 Cost Analysis | Detail Comparison 136

(57) **Abstract:** The present invention is a method, apparatus and system for comparing energy costs (124) of various energy suppliers (122) product offerings (16, 18). The system obtains user information relating to the user's location (104) and estimated energy consumption (108, 112). This information is then processed to select available energy supplier products depending on the user's location. Energy offers and cost information (124) for each of the products offered by the various energy suppliers (122) are provided and displayed to the user based on the user's estimated consumption. The user has the option of viewing more detailed information (136) on each supplier's product individually, a comparative cost analysis (134) and also environmental impact and savings information. The user can also sign-up for a selected energy supplier through the system.

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/60, 17/00, 19/00, 157/00

US CL :705/1, 7, 20, 400, 412

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/1, 7, 20, 400, 412

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN,EAST

price,fee,estimate,gas,fuel,utilit?,electric?,usage,consumption,location,geographic?,locality

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,655,085 A (RYAN et al) 05 August 1997, entire document.	1-22
Y,P	US 6,009,402 A (WHITWORTH) 28 December 1999, entire document.	1-22
Y,E	US 6,047,274 A (JOHNSON et al) 04 April 2000, entire document.	1-22
Y,E	US 6,078,850 A (KANE et al) 20 June 2000, entire document.	1-22
Y,E	US 6,070,156 A (HARTSELL JR.) 30 May 2000, entire document.	1-22

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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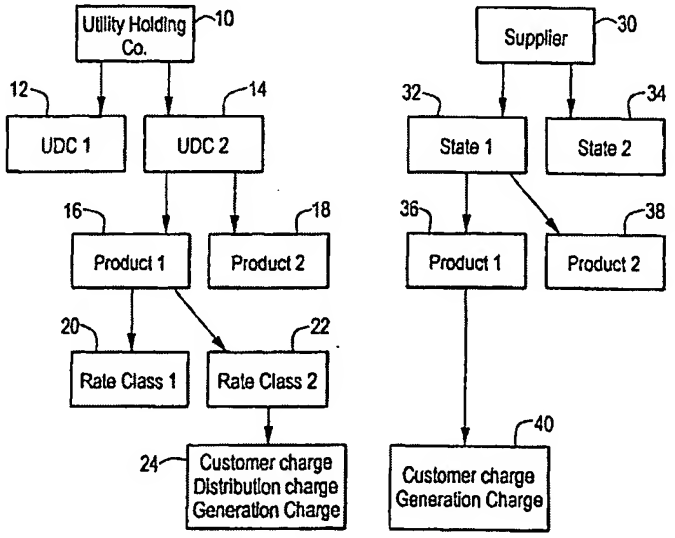

(57) Abstract

The present invention is a method, apparatus and system for comparing energy costs of various energy suppliers' product offerings. The system obtains user information relating to the user's location and estimated energy consumption. This information is then processed to select available energy supplier products depending on the user's location. Energy offers and cost information for each of the products offered by the various energy suppliers are provided and displayed to the user based on the user's estimated consumption. The user has the option of viewing more detailed information on each supplier's product individually, a comparative cost analysis and also environmental impact and savings information. The user can also sign–up for a selected energy supplier through the system.

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AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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METHOD, APPARATUS AND SYSTEM FOR CALCULATING AND COMPARING ENERGY COSTS

CROSS REFERENCE TO RELATED APPLICATION

Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

Not applicable.

FIELD OF THE INVENTION

The invention relates generally to a method, apparatus and system for calculating and comparing energy costs. More particularly, the method and system provides users with a way to compare various energy suppliers based on a comparative cost and environmental analysis.

BACKGROUND OF THE INVENTION

The provision of local utility services such as electricity and gas has long been regulated by local government. Typically, large utility companies operate within certain states as regulated entities that provide, for example, electric and gas service in defined territories. Many times, as shown with reference to FIG. 1, these utility companies are structured as parent, or holding companies 10 which are affiliated with certain utility distribution companies (UDC's) 12, 14 that actually deliver the electricity or gas. Different UDC's associated with the same utility are likely to have different products 16, 18 which in turn have different rate classes 20, 22 associated with each product. The term "product" as used herein, refers to an energy commodity such as electricity or gas.

However, recently, more and more states have begun deregulation of the energy industry. While the actual utility company 10 may still be under regulation, the actual energy commodity, such as electricity or gas, has become deregulated. As a result, the utility company 10 which once provided, e.g. the electricity or gas, may not be able to actually sell the product, e.g. electricity or gas.

The selling of the commodity, such as electricity and gas, in deregulated states is now handled by energy suppliers 30. Typically, suppliers will be non-regulated companies selling, but not distributing, the electric and gas commodity in specific states 32, 34. Each supplier may have a variety of products 36, 38 to offer an energy consumer such as an individual, family or business. The term "supplier" may vary in usage on a state by state basis but as used herein, the term will refer to any non-regulated entity which engages in the selling of utility services and commodities. In addition, a certain supplier 14 may actually be an affiliate of a utility 10 which distributes the energy commodity. However, for purposes herein, the term "supplier" will refer to both independent and affiliated energy suppliers, so long as the supplier is involved in the sale of the energy commodity

For background purposes, a more detailed examination of the deregulation of the electric industry will now be undertaken. However, the disclosure which follows should in no way be construed to be limited to the electric industry since many of the principles, processes, apparatuses, method and systems contained herein are easily applied to the gas and other related energy industries.

The electric industry can typically be broken down into four basic components: (1) generation, e.g. the power plants that create the electricity that is transported to homes and facilities; (2) transmission, e.g. the wires and associated facilities that transport the electricity (at high voltage levels) from power plants to distribution substations; (3) distribution, e.g. the wires and associated facilities that transport the electricity from distribution substations to customers' facilities and homes; and (4) customer services, which covers services such as metering and billing. In the electric industry as it existed before restructuring and deregulation, these components were bundled and provided as monopoly services by electric companies, at prices fully regulated by the state.

As a consequence of deregulation, the generation component has now been unbundled from the other components of electric service. Customers are now able to purchase generation services from entities other than their traditional electric companies. The prices that these "competitive suppliers" of generation service may charge customers will be determined by the competitive market and will not be regulated by the state, although the suppliers will be licensed by the state.

There are three generation service options available to consumers in most deregulated states. Although the actual terminology may vary, the three basic options are (1) Standard Offer Service; (2) Default Service; and (3) Competitive Generation service. Standard Offer Service is a transition generation service that will be available to customers of record of each Distribution Company. Default Service is the generation service that is provided by Distribution Companies to those customers who are not receiving either competitive generation or Standard Offer Service. Customers who move into a Distribution Company's service territory after a certain date may receive Default Service until they select a competitive supplier. Competitive Generation Service will be provided by competitive suppliers and electricity brokers that have been licensed to do so in the now deregulated area. Prices for Competitive Generation Service will not be regulated and thus will be set by the competitive electricity marketplace.

Rate-related deregulation terminology may vary from state to state. For example, in New England, the utilities' "offer" for electricity is called the "standard offer"; which is essentially the same as their generation charge. By way of further example, in Pennsylvania, if a consumer chooses to buy electricity from other than the standard UDC, the utility offers a "shopping credit", which is their generation charge.

A customer that is connected to a Distribution Company's system will receive electric service, regardless of the option under which the customer is receiving generation service. However, the price that the customer pays for generation service is dependent on the type of service the customer is receiving which is, in turn, determined by the supplier the customer has selected to provide the service or electric commodity.

All utilities have different rate classes for different types of customers. At the highest levels, there are residential rates and commercial rates. Each of these is then broken down further. Commercial rates will differ from small and large customers, commercial and industrial customers, agricultural customers, etc.

Residential rates may also broken into a variety of classes. Virtually all utilities have low income rates with varying qualification levels. Many also have special rates for customers who use the utility's fuel for heating. In the case of gas, the default rate usually assumes gas heat, and the special rate applies to non-gas heat. These special classes will also usually come in regular and low income flavors.

Thus, in the current state of deregulation, the energy consumer is faced with a startling array of supplier choices as well as complicated systems of service pricings. Accordingly, it would be desirable to have a means to aid consumers and businesses in comparing their now many energy choices and suppliers so that they can make an informed decision when choosing a supplier.

SUMMARY OF THE INVENTION

The present invention is directed to a method, apparatus and system for comparing energy costs and environmental savings of a plurality of energy suppliers' products. The invention obtains user enter information relating to the user's location and estimated energy consumption. This information may be inputted by the user or provided directly by the user's current energy supplier. The location and energy consumption information is received and processed to select available energy suppliers depending on the user's location. An energy offer is calculated for each available energy supplier products based on the user's estimated or actual past energy consumption. A selection of energy suppliers and the suppliers respective offers by product is displayed for the user. The user is provided with the option of preparing a cost analysis of energy suppliers' products the user selects. A comparative cost analysis of the selected energy suppliers's products selected by the user is displayed for the user. The user may register for a selected utility through the system.

The system provides cost estimates while accounting for varying rate structures and tiers of each supplier's energy product. The cost information may be provided in terms of a generation rate charged by the selected energy product and in terms of a total monthly cost which includes the distribution rate charged by the local utility distribution company. The user may view information comparing the cost savings of selecting a new energy supplier relative to the costs of maintaining the standard utility-provided energy service.

BRIEF DESCRIPTION OF THE DRAWINGS

The features of the invention may be more fully understood from the following detailed description of the drawings in which:

FIG. 1 is a block diagram of a typical energy utility and supplier hierarchy.

FIG. 2 illustrates an exemplary computer system and network for use with the teachings of the present invention.

FIG. 3 is an exemplary display screen for entering location and energy usage information.

FIG. 4 is an exemplary code routine for use with the teachings of the present invention.

FIG. 5 illustrates an exemplary display screen showing various energy suppliers and their respective energy offers.

FIG. 6 illustrates an exemplary display screen showing a comparative cost analysis of the selected suppliers.

FIG. 7 illustrates an exemplary display screen showing the detailed offer selection and information screen.

FIG. 8 illustrates an exemplary display screen showing environmental savings and impact information.

FIG. 9 illustrates an exemplary display screen showing an exemplary sign-up screen for a selected energy supplier.

DETAILED DESCRIPTION OF THE INVENTION

The method, apparatus and system of the present invention may be implemented on a local, remote, networked and/or distributed system as will now be described by reference to FIG. 2. A remote user may access the method, apparatus and system of the present invention on a stand-alone or a remote computer 64, network or the Internet 66. As used herein, the term "internet" generally refers to any collection of distinct networks working together to appear as a single network to a remote user. The term "Internet" on the other hand, refers to the so-called world wide "network of networks" that are connected to each other using the Internet protocol (IP) and other similar protocols. The Internet provides file transfer, remote log in, electronic mail, news and other services.

The remote user may connect via the remote computer 64 to the Internet 66 in a variety of manners known in the art. A common method of making such a connection involves allowing the remote computer 64 to communicate with an Internet Service Provider ("ISP") 68 over telephone lines using a modem or a higher speed device called a cable-modem which may be provided from a local cable company. The remote user then accesses services available on the Internet 66 through centralized communication facilities. The user may also be "hard-wired" to the Internet through a computer 70 which is connected via a Local Area Network (LAN) 72 using any number of connections such as a T1, T3 and ISDN line 74.

Resources that may be addressed over the Internet 66 include Hypertext Markup Language ("HTML"), Dynamic HTML ("DHTML"), Java, Javascript and Visual Basic script ("VBscript") files. The present invention is not limited to development in the languages listed herein and any language or development tool may be used herein to define the various components of a World Wide Web page which may incorporate the teachings of the present invention. World Wide Web pages often include text and graphics as well as "links" which allow a viewer of the page to address other resources on the Internet including other HTML pages. These pages may also communicate with databases, as is known in the art. For example, database query commands from these pages may be in Structured Query Language (SQL) or Active-X calls from the pages.

As described herein, the exemplary computers and networks shown of FIG. 2 are for descriptive purposes only. Although the description may refer to terms commonly used in describing particular public networks such as the Internet, the description and concepts equally

apply to other public and private computer networks, including systems having architectures dissimilar to that shown in FIG. 2. For example and without limitation thereto, the system of the present invention can find application in public as well as private networks.

FIGS. 3 to 8 are exemplary screens provided to a user in the present invention to obtain user information from users of the system. The screens shown may be displayed in a standard personal computer application format, in a browser format and/or other similar interface. Basically, the system prompts the user to enter some personal information such as location and estimates on the user's energy usage. Using this information, the system provides the user with a selection of energy suppliers in that user's area. The user may be given comparative cost information so that a detailed economic cost analysis can be viewed for competing energy suppliers. These values may be give as a relative cost in relation to the Standard Offer available in the user's geographical location. The user may then make a selection as to an energy supplier based on the cost information given. Registration with the selected energy supplier may be accomplished through the system. As shown and described, the present invention may contain many discrete steps. Each of these steps may be manifested to a remote user as a single web page which presents the user with options to move to another web page or to cause some appropriate action to occur as described herein. It will be appreciated by a person of ordinary skill in the art that the method described may be presented to a remote user in other formats without departing from the spirit of the invention described herein. A more detailed discussion of the system now follows, wherein exemplary display screens, equations, algorithms and code are provided.

As shown in FIG. 3, the user is prompted to enter or provide some basic user location information, such as a zip code 104 in a selection screen 100. Alternatively, in other embodiments, the two letter state abbreviation, county name and/or city name of the user may be provided. The user also may provide some energy usage information in input areas 108, 112, such as a cost from the user's monthly electricity bill or an estimated cost per month. Alternatively, the user may be prompted to enter the actual kilowatt hours used per month which may be derived from an actual utility bill the user has received. The monthly and yearly value provided and referenced herein should not be construed to limit the scope of the invention in any way. These time periods have merely been selected for convenience and clarity and it is contemplated that any predetermined time frame, such as, for example, hourly, quarterly, bi-weekly or yearly time periods may be used.

In an exemplary embodiment, the user may also enter actual energy figures or energy estimates from one to twelve monthly estimates of energy usage. It is contemplated, that more or less data points may be used, such as energy estimates on an hourly basis, but ideally the user will provide at least one month, and preferably 6 to 12 months of estimates. If the utility and energy supplier do not have summer and winter rates, then the usage amounts actually entered are averaged to create an average month. If either the utility or energy supplier have different winter and summer months, then the correct rate is applied to each month. The estimated usage for the missing months is calculated based upon the average monthly usage during that time period for which data is available. Alternatively, the estimated usage for the missing time frame may be determined using factors which impact the actual usage such as weather and other seasonal-based factors, and information on what appliances and devices the user has in the home, obtained either by asking such questions or using regional defaults.

Furthermore, the user's energy consumption information, whether provided in terms of an estimated monthly cost or actual kilowatt hours, therms or gallons may be entirely replaced or supplemented by information received from the user's current energy provider/supplier. For example, the system herein may be electronically linked to information which may reside on a database at the user's current energy supplier's location. This information may be downloaded or retrieved to provide the appropriate inputs to the system. Once this information has been provided to the system, either by the system itself of through the user input, the user may then select to see comparative supplier product offerings, for example, by selecting the "Find Offers" button 116 or other similar prompt.

In an exemplary embodiment, selecting the 'Find Offers" button 116 will display for the user a table 120 similar to the one illustrated in FIG 4. An exemplary embodiment of the display is in tabular form which includes columns designated with headings such as "Supplier/Offer" 122; "Estimated Monthly Cost" 124 and "Minimum Term Required for Service by the Supplier" 126. Typically, the minimum term will be expressed in number of months, but may be in weeks, quarters or years. Alternatively, additional information may be provided in the display such as whether the supplier is environmentally "friendly" or "green" 128 and other additional comments 130 such as sources of power, for example, wind or water.

In an exemplary embodiment, the present invention may access a database of rates of utilities and energy suppliers in the target state. As discussed above, the user's utility is identified

either by use of location identifying database, such as a state, county and/or zip code database, or simply by asking the user to select their utility from a list of utilities in their state. The list of utilities may be provided to the user in a simple list, pull-down menu or similar selection screen as is known in the art. The present invention employs a rates database which has been created for each utility in the target, deregulated states. The rates database covers all the rate types and structures identified above and is available from public sources. For a given utility, there could be more than one rate structure, reflecting, for example, consumers with different types of heating fuels. Preferably, the rates database is update yearly to reflect any rate changes or modifications.

In an exemplary embodiment of the present invention, a rates database has also been created for each energy product offered by each energy supplier licensed to offer service in the state. This part of the database is complied from private sources, and could be updated as frequently as weekly. A supplier may have multiple products, and may offer a particular product in one, a few, or all of the utility service territories in the state, or perhaps in a specific city or town. Rates may vary in different geographic areas. The method, apparatus and system of the present invention identifies whether a particular product is available for a user, based on that user's location and utility. It then selects the correct rate for each available product. The correct rate could also be based on other user characteristics, such as fuel type.

The calculations, rates and estimates determined and displayed above will now discussed in more detail which begins with a background of the structure of energy rates and their components. Typically, UDC rates can be broken into a Customer charge (or fixed monthly), Distribution charge (per kiloWatt-hour "kWh" or therm) and a Generation charge (per kWh or therm) for each rate class. For gas services, the distribution component is called a delivery charge and the generation charge is called a gas charge. For many types of energy, including electricity, the distribution and generation components of the charge may be tiered. Typically, there may be up to 2 tiers and 3 rates per both the distribution and generation components.

Furthermore, some UDC's may have a summer and winter rate schedule, where any or all of the above rate components can vary by season. Typically, summer is the months of May-October and winter is the months of November-April, but this convention may vary among different UDC's.

Typically, suppliers have rate components such as a fixed monthly rate and a Generation charge per unit. The fixed monthly rate is basically equivalent to a customer charge. Similar to the generation charge for UDC, the supplier generation rate component can be tiered. In one embodiment, a supplier may offer a fixed monthly generation charge for a fixed amount of energy. Special discounts and offers may also apply as discussed in more detail later herein.

To compare the costs of different energy suppliers in states that have deregulated energy, the present invention utilizes a number of algorithms to calculate, for example, the estimated monthly costs and cost savings associated with specific suppliers. As shown below, the calculations are shown as to compare the costs of electricity suppliers, but the basic structure of the equations and algorithms support the comparison of other types of energy suppliers as well, such as gas.

In an exemplary embodiment, the system accepts the following inputs: 1. The approximate energy usage of the consumer; 2. The distribution rate structure of the consumer's (electric or gas) utility; 3. The generation rate offered by the utility if the consumer were not to select an alternative supplier; and 4. The generation rate of the various suppliers that are available for that consumer.

In an exemplary embodiment, the outputs of the system are as follows: 1 An estimate of the monthly generation cost of the supplier options; 2. An estimate of the monthly generation cost were the consumer to decide to stay with the utility; 3. The monthly savings (or added cost) of selecting a particular energy supplier; 4. The first year savings (or added cost) of selecting a particular energy supplier, taking into account any special offers or rebated made by the energy supplier for that product (e.g. first or 12^{th} month free) of by a government entity (e.g. some energy products that rely on renewable energy may be eligible for a rebate in some states); 5. The total monthly energy cost, including both the cost of generation and the utility's cost of distribution; and 6. The total energy cost for the first 12 months, including both the cost of generation and the utility's cost of distribution. For a customer who selects a supplier, rather than buy electricity from their utility, their total cost is the sum of their utility cost (which now excludes the generation portion) and their supplier cost.

In an exemplary embodiment, the system accepts the following five basic rate elements or variations: 1. A variable rate per unit of energy consumed; 2. A fixed rate per month plus variable rate per unit of energy consumed; 3. A tiered rate which varies depending upon the level of energy

used in the month. For example, the rate might be x cents per kilowatt hour up to a kilowatt hours per month, and then y cents per kilowatt hours for levels above that. In an exemplary embodiment, the algorithm supports up to 3 tiers per rate but may be configured to accept more than three tiers as industry practices change. In addition, a tiered rate structure can include a fixed component as part of the entire rate structure; 4. A fixed amount per month, covering (up to) a fixed amount of energy delivered; 5. Different rates during summer and winter rate periods (with summer rates defined as May through October, and winter rates defined as November through April), or different tier levels at which the rates change; and 6. Different rates for consumers that use different fuels to heat their homes. Other rate type variations are possible which may include combination or variations of the ones listed above.

Selecting "Find Offers" 116 from the selection screen shown in FIG. 3 results in a number of calculations performed using the equations and algorithms provided below, wherein a Usage for a Year ($Usage_{yr}$), Average Monthly Usage ($Usage_{avg}$), Average Variable Distribution Rate (AVDR), Average Generation Rate (AVGR) and Average Monthly Generation Cost (AMGC) values are computed.

Equation 1: Usage for a Year ($Usage_{yr}$)

$$Usage_{yr} = \sum_{mon=1:12} Usage_{mon}$$

Where:

- mon = month (1 to 12)
- $Usage_m$ = energy usage during month "m" (in Fuel-Units)
- Fuel-Units = customary measurements of the fuel (.e.g. "gallons" for fuel oil).

Equation 2: Average Monthly Usage ($Usage_{avg}$)

$$Usage_{avg} = Usage_{yr} / 12$$

Equation 1 calculates a yearly energy usage as a sum of the monthly energy usage. The calculation is in the appropriate units of the fuel (e.g. Therms for natural gas). Equation 2 divides the result from equation 1 by 12 to give an average monthly energy usage.

Equation 3: Average Variable Distribution Rate (AVDR)

$$AVDR = \sum_{mon=1:12} \sum_{tier=1:N} (DistRate_{mon, tier} * Min(Max(0, (Usage_{mon} - DistTop_{tier-1})), (DistTop_{tier} - DistTop_{tier-1}))) / Usage_{yr}$$

Where:

- mon = month (1 to 12)
- $Usage_m$ = energy usage during month "m" (in Fuel-Units)
- Fuel-Units = customary measurements of the fuel (.e.g. "gallons" for fuel oil).
- $DistRate_{m, t}$ = Rate for variable distribution component in month "m" and tier "t" (in $ per Fuel-Unit)
- tier = DistRate Tier (1 to N; where "N" is the number of tiers in the utility distribution rate schedule)
- $DistTop_t$ = Highest level of Distribution rate tier level "t" (in Fuel-Units) ($DistTop_0 = 0$ and $DistTop_N = \infty$)

In an exemplary embodiment, Equation 3 may be developed as follows:

3A) $AVDR = Expense / Usage_{yr}$

3B) $AVDR = \sum_{mon=1:12} Expense_{mon} / Usage_{yr}$

3C) $Expense_{mon} = DistRate_{mon} * Usage_{mon}$

3D) $AVDR = \sum_{mon=1:12} (DistRate_{mon} * Usage_{mon}) / Usage_{yr}$

3E)
$$AVDR = \sum_{mon=1:12} ((DistRate_{mon, tier1} * Usage_{mon, tier1}) + (DistRate_{mon, tier2} * Usage_{mon, tier2}) \cdots + (DistRate_{mon, tierN} * Usage_{mon, tierN})) / Usage_{yr}$$

3F) $$AVDR = \sum_{mon=1:12} \sum_{tier=1:N} (DistRate_{mon, tier} * Usage_{mon, tier}) / Usage_{yr}$$

3G) $Usage_{mon,\,tier} = Usage_{mon} - DistBot_{tier}$

3H) $Usage_{mon,\,tier} = Max\,(0, (Usage_{mon} - DistBot_{tier}))$

3I) $Usage_{mon,\,tier} = Min\,(\ Max\,(0, (Usage_{mon} - DistBot_{tier}))\ ,\ (DistTop_{tier} - DistBot_{tier})\ )$

3J) $DistTop_{tier} = DistBot_{tier+1}$

3K) $Usage_{mon,\,tier} = Min\,(\ Max\,(0, (Usage_{mon} - DistTop_{tier-1}))\ ,\ (DistTop_{tier} - DistTop_{tier-1})\ )$

3L) $$AVDR = \sum_{mon=1:12} \Big(DistRate_{mon,1} * Min\,(Max\,(0, (Usage_{mon} - 0)), (DistTop_1 - 0)) + DistRate_{mon,2} * Min\,(Max\,(0, (Usage_{mon} - DistTop_1)), (DistTop_2 - DistTop_1)) \cdots + DistRate_{mon,N} * Min\,(Max\,(0, (Usage_{mon} - DistTop_{N-1})), (\infty - DistTop_{N-1})) \Big) / Usage_{yr}$$

3M) $$AVDR = \sum_{mon=1:12} \sum_{tier=1:N} (DistRate_{mon,tier} * Min\,(Max\,(0, (Usage_{mon} - DistTop_{tier-1})), (DistTop_{tier} - DistTop_{tier-1}))) / Usage_{yr}$$

Equation 3 calculates the Average Variable Distribution Rate (AVDR). The AVDR is a double-summation divided by the yearly energy usage. The inner sum of the double summation adds up the contributions by rate tier while the outer summation adds these results over the 12 months of a year.

Equation 3A shows that AVDR is the ratio of Expense to Usage. Here, expense is in dollars, allocated to Variable Distribution and Usage is in Energy Units customary for the fuel (e.g. kWh for electricity). Since usage varies with weather over the year, and rates may also have seasonal variation, the expense is expanded in equation 3B by showing the expense as monthly amounts that must be summed up before the ratio is taken.

Equation 3C shows that Expense in any month is composed of the product of the Usage in that month and the Rate in that month (the rate is the rate attributable to Variable Distribution). Substituting this expanded Expense term into equation 3B gives equation 3D. Typically, there are multiple rates, each for a different level of usage. They are expressed in tiers, where the first rate tier is applied to the first usage up to a limit, the second tier rate is applied to usage above the first limit and below the second limit, etc. For example, a 2-tier electric rate may charge $0.10 per kWh for the first 1000 kWh in a month, and $0.08 for each kWh over 1000 in a month.

This multiple-tier rate calculation is shown in equation 3E as usage in each tier is multiplied by the rate for the tier. This is done month-by-month and summed. As before, the expense sum is divided by the year's Usage. Equation 3F shows the same calculation as equation 3E, but as a double-sum by month of a sum by tier.

The Usage within a tier is the excess of the Usage in the month over the Bottom level of the tier. This is expressed in equation 3G. But if the Usage for the month could be below the bottom level of a tier and equation 3G might yield a negative result. This is cured in the more sophisticated equation 3H which uses the "Max" function to ensure that the Usage in a tier cannot be less than zero.

Similarly, the usage calculated in equation 3H might be larger than the full range of the tier. This excessive usage figure is cured in equation 3I which uses the "Min" function to ensure that the Usage within a tier does not exceed the range between the Top and Bottom of the tier.

In equation 3J that the Top of Tier(N) is equal to the Bottom of Tier(N+1). Substituting this into equation (I), yields equation 3K – the Usage in a given month for a given tier. Substituting this new expression for Usage into equation e, gives the expanded version of AVDR in equation 3L. Note that in equation 3L, the Top_{tier-1} term for Tier1 (Top_0) is 0. This reflects the fact that there is no tier below Tier 1. Likewise, since there is no upper limit on the TierN, an infinite value (∞) is inserted for Top_N. Collapsing multiple tiers in equation 3L into a second summation across the tiers yields the final version in equation m which is the same as equation 3L that we started

with. Finally, the same substitutions of $Top_0 = 0$ and for $Top_N = \infty$ must be made as in equation 3L

Equation 4: Average Variable Generation Rate (AVGR)

$$AVGR = \sum_{mon=1:12} \sum_{tier=1:N} (GenRate_{mon, tier} * Min(Max(0, (Usage_{mon} - GenTop_{tier-1})), (GenTop_{tier} - GenTop_{tier-1}))) / Usage_{yr}$$

Where:

- mon = month (1 to 12)
- $Usage_m$ = energy usage during month "m" (in Fuel-Units)
- Fuel-Units = customary measurements of the fuel (.e.g. "gallons" for fuel oil).
- $GenRate_{m,t}$ = Rate for variable Generation component in month "m" and tier "t" (in $ per Fuel-Unit)
- tier = GenRate Tier (1 to N; where "N" is the number of tiers in the utility Generation rate schedule)
- $GenTop_t$ = Highest level of Generation rate tier level "t" (in Fuel-Units) ($GenTop_0 = 0$ and $GenTop_N = \infty$)

Equation 4 is built in the same manner as described above with relation to equation 3. Equation 4 differs only in that it makes explicit that there may be different rates and tiers for Generation than those used for Distribution. Likewise, this same structure is repeated in equations 10-A and 10-B, discussed later herein, where the marginal effects of usage is calculated.

Equation 5: Average Monthly Distribution Cost (AMDC)

$$AMDC = dfr + AVDR * Usage_{Avg}$$

Where: dfr = distribution fixed monthly rate
$Usage_{avg}$ = average monthly energy usage

Equation 6: Average Monthly Generation Cost (AMGC)

$$AVGC = gfr + AVGR * Usage_{Avg}$$

Where: gfr = distribution fixed monthly rate
$Usage_{avg}$ = average monthly energy usage

When generation charge is fixed for a certain amount of energy, this component must be accommodated as follows:

6A) $AVGC = Max (gfc, (gfc + AVGR * (Usage_{avg} - gfa)))$

Where:

gfc	= fixed generation charge
gfa	= amount of energy delivered for the fixed charge
$Usage_{avg}$	= average monthly energy usage

Equations 5 and 6 apply the average rates to average usage to compute average monthly costs, taking into account fixed cost components. Equation 6A is a variation of Equation 6 where an energy product has a fixed cost for a fixed amount of fuel, rather than a fixed cost plus a variable rate. In the present invention, the generation charge can be generated by the following code shown in FIG. 5. As shown in FIG. 5, the generation charge is developed by first sending a query to determine which supplier offers the user's location information, e.g. in this case, zipcode, is eligible for. From this, an early charge is generated, based on factors such as 12 months of costs, applicable rebates, free months and special offers. Most of this information may drawn from two database tables which, in this exemplary embodiment, are called Eoffers and RateRange. The generation charge can be structured in one of four ways, e.g. Fixed (X charge for Y kWh), Tiered (X charge for first tier of Y kWh, Z charge for second tier of Y kWh, etc.), Indexed (X charge for Y kWh, then Z charge for anything above Y kWh) or "piggy back" (additional kWh rate that sits on a regular fixed rate).

In the present invention, the user may give some number of cost figures for months or periods (i.e. average summer month cost) in the year. For each, it is necessary to estimate the amount of fuel that is consumed. The equation for the relationship between the monthly estimate and the cost components is given below in equation 9. Equation 9 takes into account fixed cost components (dfc and gfc) if any, as well as the matching fixed fuel amounts associated with these (dfa and fga) if any. If there is no fixed component, then these terms are set to zero and the equation will still calculate properly.

Equation 7: Determining Average Seasonal or Monthly Usage When User Provides Cost Rather Than Usage Estimate

$$UserEstimate_{mon} = dfc_{mon} + gfc_{mon} + \sum_{tier=1:N} (DistRate_{mon, tier} * Min (Max (0, (Usage_{mon} - dfa_{mon} - DistTop_{tier-1})) ,$$

$$(DistTop_{tier} - DistTop_{tier-1})))$$

$$+ \sum_{tier=1:N} (GenRate_{mon, tier} * Min(Max(0, (Usage_{mon} - gfa_{mon} - GenTop_{tier-1})), (GenTop_{tier} - GenTop_{tier-1})))$$

Where:

$UserEstimate_{mon}$	= cost entered by user for month mon
mon	= month (1 to 12)
$Usage_{mon}$	= energy usage during month "mon" (in Fuel-Units)
Fuel-Units	= customary measurements of the fuel (.e.g. "gallons" for fuel oil).
$DistRate_{m, t}$	= Rate for variable Distribution component in month "m" and tier "t" (in $ per Fuel-Unit)
$GenRate_{m, t}$	= Rate for variable Generation component in month "m" and tier "t" (in $ per Fuel-Unit)
DistTier	= DistRate Tier (1 to N; where "N" is the number of tiers in the utility distribution rate schedule) These tier amounts are net of any fuel included in the fixed portion of charge (dfa) if any.
$DistTop_t$	= Highest level of Distribution rate tier level "t" (in Fuel-Units) ($DistTop_0 = 0$ and $DistTop_N = \infty$)
GenTier	= GenRate Tier (1 to N; where "N" is the number of tiers in the utility generation rate schedule) These tier amounts are net of any fuel included in the fixed portion of charge (gfa) if any.
$GenTop_t$	= Highest level of Generation rate tier level "t" (in Fuel-Units) ($DistTop_0 = 0$ and $DistTop_N = \infty$)
gfc_{mon}	= fixed generation charge of current generation supplying utility in the given month (if any)
gfa_{mon}	= fixed energy amount delivered for the fixed generation charge by the current generating supplier in the given month (if any)
dfc_{mon}	= fixed distribution charge of local utility in the given month (if any)
dfa_{mon}	= fixed energy amount delivered for the fixed distribution charge in the given month (if any)

Equation 7 needs to be solved for the $Usage_{mon}$ term, but this is quite not practical in closed form because of the non-linearity (discontinuities) introduced by the price tiers. This is not a problem for a computer as it can use one of many algorithms to find a Usage figure which will result in the UserEstimate of cost.

The methods can use the equation in a forward manner to test various Usage values to see if they generate the desired UserEstimate (or a value that is close enough). This trial-and-error process can be as simple as a count from zero upward until the desired UserEstimate is matched or more sophisticated search algorithms, such as a binary search.

Once the monthly energy usage amounts have been estimated, they are combined to form a yearly estimated Usage, and then an average monthly usage. In this combination, seasonal information is used to improve the average. For example, in the simplest case, if the user gives one winter and one summer month, these can be used 6 times each. However, if the user gives 1 winter and 2 summer months, they would not be given equal weight, but the two summer values would be averaged to arrive at a summer value and the single winter value would be used to represent the entire winter. These would then be expanded into 6 summer and 6 winter months to arrive at a yearly Usage.

In one exemplary example, if the user reported $100 of estimated usage per month, and the utility's rate structure is $5 per month plus 8 cents per kWh for distribution and 3 cents per KWh for generation, the usage is calculated as (100-5)/.11 or 863 kWh. If the rate is a tiered rate, the calculation is as follows. For a rate of $5 plus 8 cents for the first 500 kWh and 10 cents thereafter, plus 3 cents per kWh for generation, the calculation must first determine if the amount entered by the user could have been reached with usage at or below the first tier. If the user enters both of the summer and winter cost estimates and the user's utility does offer different summer and winter rates, the calculation noted above is made separately for each time period, and then averaged. If the user enters only one of the above, and the user's utility does not have different summer and winter rates, the single entry is used and the calculations are identical to above. If the user enters only a winter or a summer cost estimate and the user's utility does have different summer and winter rates, the summer and winter rates are averaged, and then applied against the cost estimate as above.

From the information illustrated in FIG. 4 and as calculated above, the user may elect to select a energy supplier simply based on the information provided or the user may select to see a more detailed cost analysis of certain providers. Certain providers may be "checked-off" or selected, such as shown in the "Inc." or "Include" column 132. By default, the system will default to having all suppliers included in the cost analysis. The user may then select the cost analysis by clicking the "cost analysis" 134 button or other similar prompt. The user may also have the option

of seeing a detailed comparison 136 information of certain suppliers as discussed in more detail later herein.

Once the "cost analysis" 134 has been selected, the user is displayed a table similar to the one shown in FIG. 6. In an exemplary embodiment, the table lists the suppliers' products by "Supplier/Offer Name" 152; "Monthly Generation/Supplier Charge" 154; Monthly Total Electric Bill" 156; "Estimated Monthly Savings" 158; "1st year Generation/Supplier Charge" 160; 1st Year Total Electric Bill" 162 and "1st year Savings" 164, all of which may be appropriately abbreviated as shown in FIG. 6. Typically, the monthly savings and 1st year savings information are based on a reference value of the Standard Offer as discussed earlier herein.

The term "savings" as used herein may either in the form of an actual savings to the user or a cost to the consumer based on a reference value, which is typically the cost of staying with the standard UDC or standard offer. For example, as shown in FIG. 6, the Southern California Edison Standard Offer 166 for a month is $13.55 (reference numeral 168) while Commonwealth Energy Corporation's (CEC) 170 monthly charge is $12.90 (reference numeral 172) and Green Mountain Energy Resources Wind of the Future's (GMER) 174 charge is $24.93 (reference numeral 176). Thus compared to the Southern California Edison Standard Offer 166 of $13.55 (reference numeral 168), CEC 170 offers a monthly savings of $.65 (reference numeral 178) and GMER 174 offers a monthly savings of negative $11.36 (reference numeral 180), as indicated by the number in parentheses. In an exemplary embodiment, the monthly and yearly cost savings may be calculated by the following equations.

Equation 8: Monthly Cost Savings (MS)

$$MSs,j = (AVGCu - AVGCs,j)$$

Where:

MSs,j	= Monthly savings for supplier "s", offer "j"
$AVGCu$	= average monthly generation cost for the local utility
$AVGCs,j$	= average monthly generation cost for supplier "s", offer "j"

Equation 9: Annual Cost Savings (ACS)

$$ACSs,j = 12 * MSs,j + rebate_{s,j} + discount_{s,j}$$

Where:

$rebate_{s,j}$ = rebate available for supplier "s", offer "j"
$discount_{s,j}$ = discounts offered for supplier "s", offer "j"

Equations 7 and 8 determine monthly and annual savings of selecting a particular energy supply option over the "default" or "standard" utility service, building off the earlier equations. The annual savings take into account any special discounts or rebates.

Alternatively, the system may be configured to provide cost savings information based on a user selected comparison of competing suppliers rather than based on the Standard Offer.

If the user selects to see a detailed comparison 136 in FIG. 4, the user is displayed a screen similar to the screen 190 shown in FIG. 7. In an exemplary embodiment, the selected suppliers are shown in a scroll down type window or menu 192. The user may select from the window to see more detailed information on the desire supplier. For example, as shown, the "PG&E Energy Service Corporation" is selected and the user is provided information such as the "Rate" 194, "Sources" 196 and "Minimum Term" 198 required by the supplier. Any additional information may be supplied such as whether the supplier has a switching fee and whether any product bundling is available. The user may undertake to view more detailed information on any number of suppliers the user desires. Furthermore, environmental savings information in a further screen 200, as shown in FIG. 8 may be provided to the user such as the savings related to changing a supplier and implementing energy savings measures and actual environmental savings, such as the amount of emission types reduced. Some exemplary equations and algorithms for calculating environmental saving information now follows.

Equation 10: Marginal Rate for Determining Savings Impact of Savings Measures (MSR)

$$MSR = MSRD + MSRG$$

$$\begin{aligned} 10A)\ MSRD = 10 * \sum_{mon=1:12} \sum_{tier=1:N} & (DistRate_{mon,\,tier} * \\ & Min(\ Max(\ 0,\ (Usage_{mon} - DistTop_{tier-1})\ ),\ (DistTop_{tier} - DistTop_{tier-1})\ )\ ) \\ & - (DistRate_{mon,\,tier} * \\ & Min(\ Max(\ 0,\ (0.9 * Usage_{mon} - DistTop_{tier-1})\ ),\ (DistTop_{tier} - DistTop_{tier-1})\ )\ ) \\ &) \\ & / Usage_{yr} \end{aligned}$$

$$\begin{aligned} 10B)\ MSRG = 10 * \sum_{mon=1:12} \sum_{tier=1:N} & (GenRate_{mon,\,tier} * \\ & Min(\ Max(\ 0,\ (Usage_{mon} - GenTop_{tier-1})\ ),\ (GenTop_{tier} - GenTop_{tier-1})\ )\ ) \\ & - (GenRate_{mon,\,tier} * \\ & Min(\ Max(\ 0,\ (0.9 * Usage_{mon} - GenTop_{tier-1})\ ),\ (GenTop_{tier} - GenTop_{tier-1})\ )\ ) \\ &) \\ & / Usage_{yr} \end{aligned}$$

Equation 10 provides a way to estimate an average marginal rate for the purposes of calculating the impact of energy savings measures. As used herein, the term energy savings measures may include any activity, device or task which results in energy savings to the user. For example, an energy savings measure may be something as simple as lowering the thermostat a few degrees to something more involved like replacing all lighting in a house with energy efficient bulbs. In equation 10, the marginal rate calculations ignore the fixed component of the rate structure and take into account the tier levels. This is accomplished in effect by determining what the average variable rate would be if the usage was 10% lower in each time period.

Equation 11: Combined Savings Of Changing Supplier and Implementing Energy Savings Measures (ACSM)

$$ACSM = ACS + \sum_f \sum_m MSR_{f,j} * Sav_m)$$

Where:

- f = fuel used for savings measure m
- Sav_m = savings (in appropriate fuel usage) associated with savings measure m.(as determined via an energy analysis model)
- $MSR_{f,j}$ = the marginal savings rate associated with fuel "f" for supplier "j"

Equation 11 provides a way to calculate the combined effect of selecting a particular energy supply option and performing some energy savings actions.

Equation 12: Environmental Savings (ES)

$$ESe = (Usage_{yr} * (ER_{e,f,r} - ER_{e,f,s,j}) + \sum_f \sum_m MSR_{f,j} * Sav_m$$

Where:

- $ER_{e,f,r}$ = Environmental rate for emission type "e" for fuel "f" for region "r" (Note: emission rates for fuels other than electricity are constant for all regions)
- $ER_{e,f,s,j}$ = Environmental rate for Emission Type "e" for fuel "f" for supplier "s" offer "j"
- Emission types include CO_2, NO_2 and SO_x

Equation 12 provides a way to calculate the environmental impact of selecting a particular energy supply option and performing some energy savings actions. Referring to FIG. 8, an exemplary display screen 200 is shown wherein the user may view information, such as calculated in equation 12. The user may be provided with information related to the amount of emission types 202 saved as well as actual economic savings 204 by selecting a specific supplier. The user may also have the option of selecting additional energy savings measures 206 such as "Lower the thermostat setting" and "Replace your refrigerator" and their impact on both cost and emissions.

In another embodiment of the present invention, after the user has viewed the information on the system, such as the cost analysis or environmental impact information, the user may optionally elect to sign-up for a certain supplier product or service type through the system. Typically, the user will use considerations such as cost and environmental impact with which to select an energy supplier product. The user through a button, prompt or other similar means may be provided with the choice to sign-up on the system. If this option is chosen by the user, the user will be provided with a display 210 as shown in FIG. 9. The user may enter personal information

such as name, address, phone and current utility 212 which may then be transmitted or provided to the selected supplier in order to properly register the user for the desired service. The present invention as shown and described herein is well adapted to be utilized on a personal computer on which the present invention may be implemented locally or accessed remotely.

As used herein, the term computer or computer system refers to a machine having a central processing unit (CPU), which may be provided, for example, as a conventional microprocessor, a random access memory (RAM) for temporary storage of information, and a read only memory (ROM) for permanent storage of information. Computer system also includes a display , and an audio system. Each of the aforementioned components are coupled to a bus. Operation of computer system is generally controlled and coordinated by operating system software. The operating system controls allocation of system resources and performs tasks such as processing, scheduling, memory management, networking, and I/O services, among things. Thus, an operating system resident in system memory and executed by CPU coordinates the operation of the other elements of computer system.

Data and software may be provided to and extracted from computer system via removable storage media such as a diskette, tape and CD ROM . For example, data values generated may be stored on storage media. The data values may then be retrieved from the media by CPU and utilized by CPU to perform the processing steps described herein. Alternatively, CPU may simply store such data values in ROM. User input to computer system may be provided by a number of devices. For example, a keyboard and a mouse are coupled to bus by a controller.

Computer system may also include a communications adapter which allows the system to be interconnected to a local area network (LAN) or a wide area network (WAN), through an adapter, bus or network card Thus, data and computer program software can be transferred to and from computer system via the adapter, bus and network.

As indicated heretofore, aspects of this invention pertain to specific "methods" and "method functions" implementable on computer systems. Those of ordinary skill in the art should readily appreciate that computer code defining these functions can be delivered to a computer in many forms; including, but not limited to: (a) information permanently stored on non-writable storage media (e.g., read only memory devices within a computer or CD-ROM disks readable by a computer I/O attachment); (b) information alterably stored on writable storage media (e.g., floppy

disks and hard drives); or (c) information conveyed to a computer through communication media such as telephone networks. It should be understood, therefore, that such media, when carrying such information, represent alternate embodiments of the present invention.

It will be understood that the foregoing is only illustrative of the principles of the invention, and that various modifications can be made by those skilled in the art without departing from the scope and spirit of the invention. For example, energy cost calculations can be modified to account for variations in weather, location and usage patterns for certain users. Furthermore, the equations, algorithms and calculations provided herein can be easily modified to account for supplier offers which vary according to different time periods, seasonal variations and/or combinations of these. For example, the equations herein can be easily modified to accommodate an energy product which, for example, varies hourly, wherein the supplier charges more for usage during daytime hours and less for usage during the nighttime.

What is claimed is:

1. A method for comparing energy costs for a plurality of energy suppliers's products having varying rate elements, the method comprising the steps of:

a) prompting a user to enter information relating to the user's location and estimated energy consumption;

b) receiving the information entered by the user and processing the information to select available energy suppliers depending on the user's location;

c) calculating an energy offer for each available energy supplier based on the user's estimated energy consumption;

e) displaying for the user a selection of energy suppliers and the suppliers respective offers;

f) providing the user with the option of preparing a cost analysis of energy suppliers the user selects; and

g) calculating and displaying a comparative cost analysis of the selected energy suppliers selected by the user.

2. The method of claim 1, further comprising the step of calculating and providing environmental savings and impact information based on a selected energy supplier's product as well as any energy saving measures instituted by the user.

3. The method of claim 2, wherein the cost analysis provides the user with information relating to how much pollutants are increased or decreased depending on which energy supplier is selected for use.

4. The method of claim 1, wherein the information relating to the user's energy consumption is a cost estimate of an average energy bill over a predetermined time period.

5. The method of claim 1, wherein the information relating to the user's energy consumption is an estimate of the user's energy consumption over a predetermined time period, wherein if less than 12 months information is provided, an estimated energy usage over an entire year is calculated.

6. The method of claim 1, wherein the cost analysis provides the user with a cost comparison of the selected energy providers' products based on each provider's respective product offer, the cost comparison including information comparing the cost of each supplier's product providing

energy to the user in a predetermined time frame and the savings to the user of selecting a certain supplier's product in the predetermined time frame.

7. The method of claim 1, wherein the energy suppliers' products are selected from a group consisting of electric, oil and gas energy suppliers.

8. The method of claim 7, wherein the cost analysis provides the user with a total estimated monthly and yearly bill calculations for each energy supplier's product, the bill calculations accounting for any cost variables associated with the supplier's product.

9. The method of claim 8, wherein the cost variables are selected from a group consisting of sign-up discounts, age discounts, location discounts and special promotional offers.

10. The method of claim 1, further comprising the step of providing to the user the option of viewing detailed information for the energy provider's products the user selects.

11. The method of claim 1, wherein the detailed information provided to the user includes at least one or more categories selected from the group of rate, sources, whether the supplier has a switching fee, any bundling information, green power information and term.

12. A method for comparing energy costs which accounts for the distribution rate structure of a user's utility and the varying generation rates offered by a plurality of energy suppliers, comprising the steps of:

a) soliciting and receiving information from the user about the user's location and energy consumption and processing the information to select available energy suppliers according to the user's location information; and

b) providing and calculating a comparative analysis to the user based on the available energy suppliers, wherein the user is provided with each supplier's charge in a predetermined time frame and a savings for that predetermined time frame when compared to the user's current energy supplier.

13. The method of claim 12, wherein the savings for that predetermined time frame accounts for any applicable discounts and rebates provided to the user by the energy supplier.

14. The method of claim 12, wherein the step of providing and calculating a comparative analysis further includes providing and calculating comparative environmental information for a selected energy supplier and any energy saving measures the user undertakes.

15. An apparatus for providing a page which provides a comparison of a plurality of energy suppliers on a computer system accessible to a plurality of remote users through a computer network, comprising:

a) means for prompting a user to enter information relating to the user's energy consumption;

b) means for receiving the information entered by the user and processing the information to select available energy suppliers based on the user's geographical location;

c) means for calculating an energy offer for each available energy supplier based on the user's estimated energy consumption;

e) means for displaying for the user a selection of energy suppliers and the suppliers respective offers;

f) means for providing the user with the option of preparing a cost analysis of energy suppliers the user selects; and

g) means for calculating and displaying a comparative cost analysis of the selected energy suppliers selected by the user.

16. The apparatus of claim 15, wherein the means for calculating and displaying a comparative cost analysis provides information relating to the environmental savings of selecting a certain energy supplier.

17. In a system for comparing the costs of selecting a certain energy product in a certain geographical location, a computer program product comprising a computer useable medium having computer readable program code to direct the system to perform at least the following steps:

a) receiving information related to a user's energy consumption;

b) calculating a comparative cost analysis by offer for available energy products based on the user's energy consumption; and

c) providing a comparative analysis for the user of available energy products.

18. The system of claim 17, further comprising the step of:

d) providing environmental savings and impact information to the user for energy products selected by the user.

19. The system of claim 18, wherein the environmental savings information includes at least one of the following emission types selected from the group consisting of carbon dioxide, nitrous oxide and sulfur oxide.

20. The system of claim 17, wherein the system calculates the comparative analysis by offer using the available energy products which may have one or more rate elements.

21. The system of claim 20, wherein the rate elements are selected from a group consisting of a variable rate per unit of energy consumed, a fix rate per month plus variable rate per unit of energy consumed, a tiered rate, a fixed amount per month, a seasonal variable rate and a varying fuel rate.

22. The system of claim 17, wherein the system obtains the user's energy consumption information from the user's current utility provider.

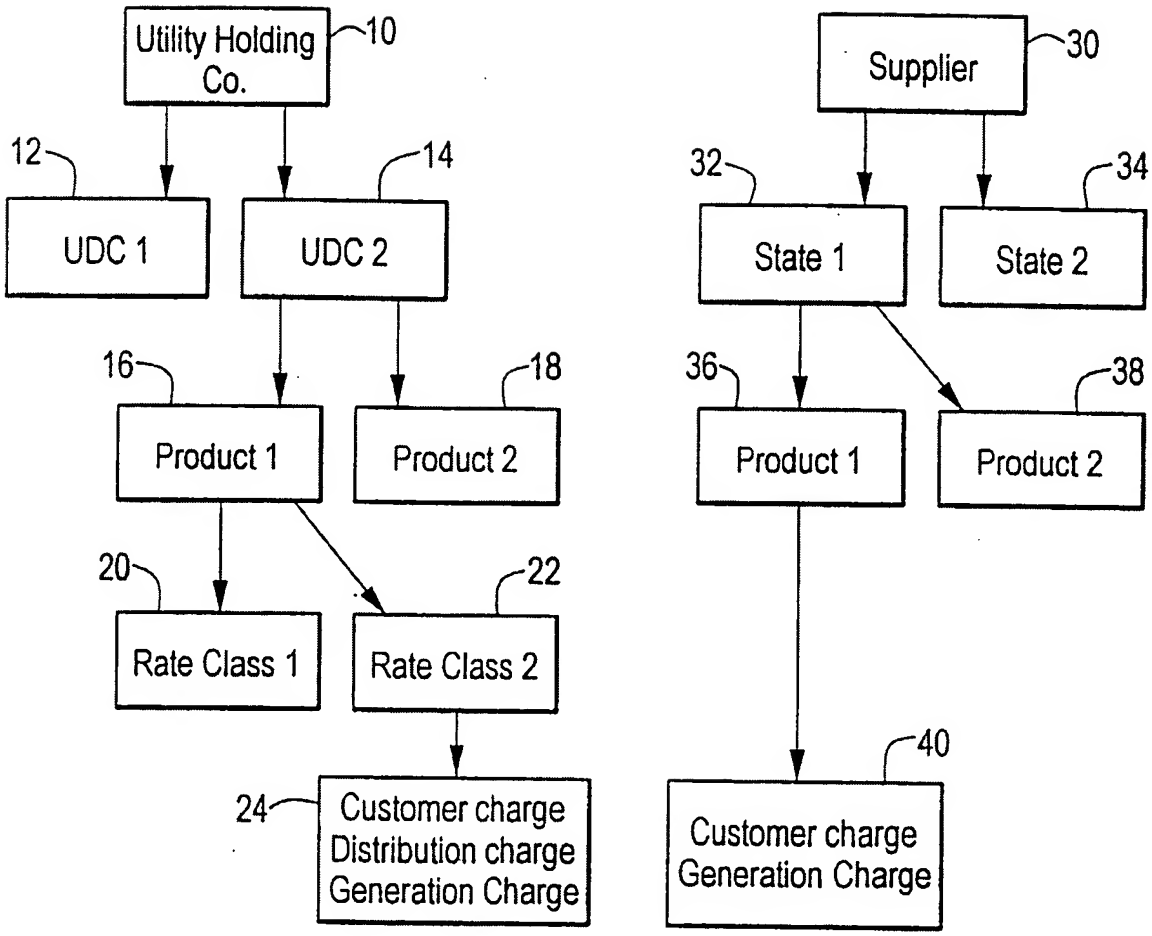

Utility Holding Co.
10
12
14
UDC 1
UDC 2
16
18
Product 1
Product 2
20
22
Rate Class 1
Rate Class 2
24
Customer charge
Distribution charge
Generation Charge
Supplier
30
32
34
State 1
State 2
36
38
Product 1
Product 2
40
Customer charge
Generation Charge

FIG. 1

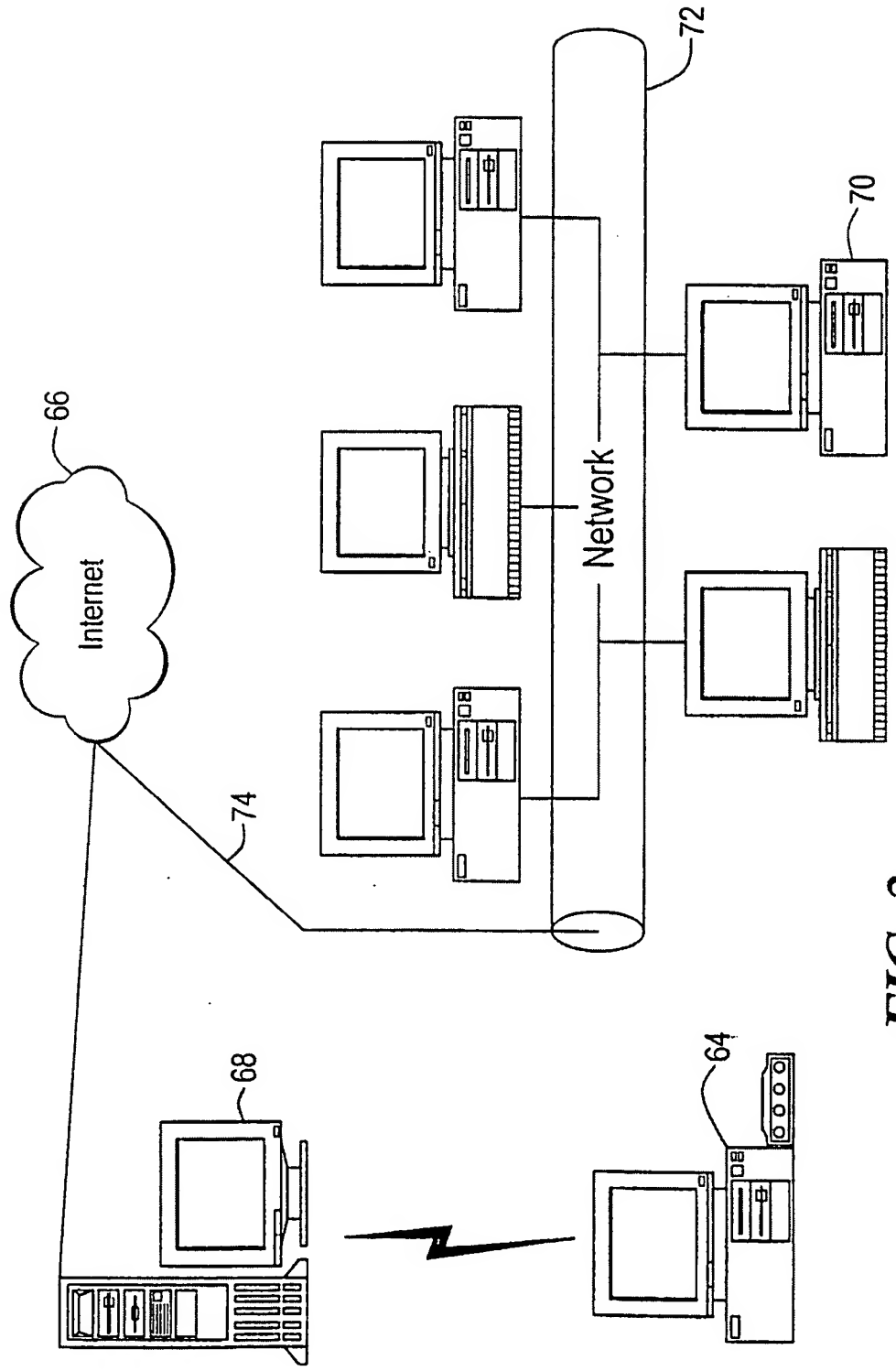


FIG. 2

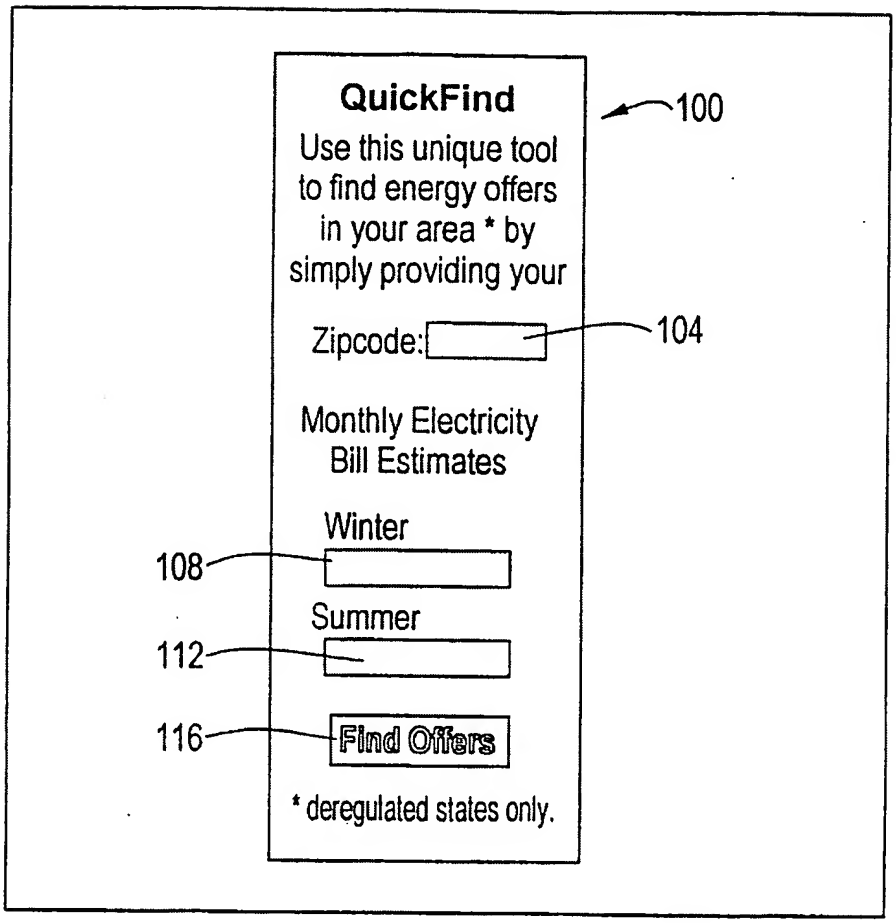
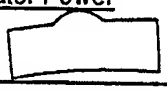
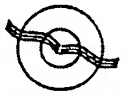

QuickFind
100
Use this unique tool to find energy offers in your area * by simply providing your
Zipcode:
104
Monthly Electricity Bill Estimates
Winter
108
Summer
112
116
Find Offers
* deregulated states only.

FIG. 3

Offers for BEVERLY HILLS (90210)

You can see key elements of current supplier offers below. Click Cost Analysis for more cost estimates or Detail Comparison for ore details. Uncheck offers that you don't want to include in these comparisons.

Inc. (122)	Supplier/Offer	Est. Mon. Cost (124)	Min. Term (Mon.) (126)	Green (128)	Comments (130)
☑	Cleen'n green Green 50	$22.76	1	CEC Registered Green-E Certified	
☑	Cleen'n green Green 50	$27.80	1	CEC Registered Green-E Certified	
☑	Cleen'n green Green 50	$17.72	1		
☑	Commonwealth Energy Corporation GreenSmart	$12.90	1	Green-E Certified	
☑	Edison Source Earthsource 50	$20.05	1	Green-E Certified	
☑	Edison Source Earthsource 100	$26.02	1	Green-E Certified	
☑	Friendly Power Company, LLC Friendly Rate	$13.28	1	0	
☑	Green Mountain Energy Resources Water Power 	$18.86	12	Green-E Certified	Includes at least 90% from large and small hydro-power sources
☑	Green Mountain Energy Resources 75% Renewable Power 	$20.05	12	Green-E Certified	Features small scale hydro, biomass and geothermal energy from sources in California and other areas of the west.
☑	Green Mountain Energy Resources Wind of the Future 	$24.93	36	Green-E Certified	The more people who choose this blend, the more wind turbines we&acutell build
☑	PG&E Energy Services Corporation Clean Choice 100	$21.52	1	CEC Registered NRDC compliant	
	Southern California Edison Standard Offer	$13.55	1	No	

134 Cost Analysis | Detail Comparison 136

FIG. 4

```
sub getRateRange(NexRet, offerID, rateType, kWH, estimatedCost, rateRangeText, spaceChair,
carriageReturn, PXStr)
        Dim offerRates_RS
        Dim topRange
        Dim botRange
        Dim rateRange

        Dim SQLString
        SQLString = "getRatesForOfferID" & offerID

        set offerRates_RS = NexRet.Execute(SQLString)

        On Error Resume Next
        If offerRates_RS.BOF And offerRates_RS.EOF Then fEmptyRecordset = True
        On Error Goto 0

        estimatedCost = CSng(0.0)
        rateRangeText = ""
        Do While Not offerRates_RS.EOF
                botRange = CLng(offerRates_RS("startKWh"))
                topRange = CLng(offerRates_RS("endKWh"))
                rateRange = topRange - botRange
                if offerRates_RS("indexRateConstant") = 1 then
                        estimatedCost = kWH * CSng(offerRates_RS("costPerKWh"))
                        rateRangeText = PXStr
                else
                        if rateRange = 1 then
                                rateRangeText ="$" + CStr(offerRates_RS("costPerKWh"))+_
                                        "/mo+" + rateRangeText
                                estimatedCost = estimatedCost + CSng(offerRates_RS("costPerKWh"))
                        else
                                if kWH > botRange then
                                        if (kWH < topRange) or (topRange = 0) then
                                                topRange = kWH
                                                rateRange = topRange - botRange
                                        end if
                                        estimatedCost = estimatedCost + rateRange *
CSng(offerRates_RS("costPerKWh"))
                                end if
                                if len(rateRangeText)>= len(PXStr) then
                                        if right(rateRangeText, len(PXStr)) = PXStr then
                                                rateRangeText = rateRangeText + "+"
                                        end if
                                end if
                                if (offerRates_RS("endKWh") = 0) then
                                        rateRangeText = rateRangeText & "$" +
CStr(offerRates_RS("costPerKWh")) + "/kWh"
                                else
                                        rateRangeText = rateRangeText &
CStr(offerRates_RS("startKWh")) & "-" &_
                                                CStr(offerRates_RS("endKWh")) & "=" &
                                                "$" + CStr(offerRates_RS("costPerKWh")) + "/kWh"
                                end if
                        end if
                end if
                offerRates_RS.MoveNext
                if Not offerRates_RS.EOF and rateRangeText <> PXStr then
                        'rateRangeText = rateRangeText & ";"
                        rateRangeText = rateRangeText & carriageReturn
                end if
        Loop
        offerRates_RS.Close
end sub
```

FIG. 5

Cost Analysis by Offer

Below is a comparison of various estimated costs of each of the offers. The cost is based on the kilowatt hour figure you gave us and an average rate for your utility. They are a very rough estimate meant for comparison purposes only. Your bill could vary substantially from the estimates below. The 1st year generation charge may not be equal to the monthly total electric bill x 12 months; this is because some offers may give customers free periods of service for signing up with them. All savings are based on the Standard Offer.

Supplier/Offer (152)	Monthly Generation/Supplier Charge (154)	Monthly Total Elec. Bill (156)	Est. Monthly Savings (158)	1st Year Generation/Supplier Charge (160)	1st Year Total Elec. Bill (162)	1st Year Savings (164)
PG & E Energy Services Corporation Clean Choice	$15.72	$67.21	($2.17)	$188.62	$806.50	($26.02)
Cleen'n green Cleen 100	$17.72	$69.21	($4.17)	$212.64	$830.52	($50.04)
PG & E Energy Services Corporation Clean Choice 50	$18.97	$70.46	($5.42)	$227.64	$854.52	($65.04)
PG & E Energy Services Corporation Clean Choice 100	$21.52	$73.01	($7.97)	$258.21	$876.09	($95.61)
Cleen'n green Green 100	$27.80	$79.29	($14.25)	$333.61	$951.49	($171.01)
Cleen'n green Green 50	$22.76	$74.25	($9.21)	$273.13	$891.01	($110.53)
Edison Source Earthsource 50	$20.05	$71.54	($6.50)	$240.65	$858.53	($78.05)
Edison Source Earthsource 100	$26.02	$77.51	($12.47)	$312.19	$930.07	($149.59)
Keystone Energy Services Earthchoice 50	$14.87(std. offer) $8.00 (ReGen)	$74.36	($9.32)	$178.39(std.offer) $96.00 (ReGen)	$892.27	($111.79)
Keystone Energy Services Earthchoice 100	$26.93	$78.42	($13.38)	$323.17	$941.05	($160.57)
Friendly Power Company, LLC Friendly Rate	$13.28	$64.77	$0.27	$159.35	$777.23	$3.25
Green Mountain Energy Resources Water Power	$18.86	$70.35	($5.31)	$226.34	$844.22	($63.74)
Green Mountain Energy Resources 75% Renewable Power	$20.05	$71.54	($6.50)	$240.65	$858.53	($78.05)
Green Mountain Energy Resources Wind of the Future (174)	$24.93	$76.42	($11.38)	$299.18	$917.06	($136.58)
Commonwealth Energy Corporation GreenSmart (170)	$12.90	$64.39	$0.65	$154.80	$772.68	$7.80
Southern California Edison Standard Offer (166)	$13.55	$65.04	($0.00)	$162.60	$780.48	($0.00)

176 172 168 178 180

FIG. 6

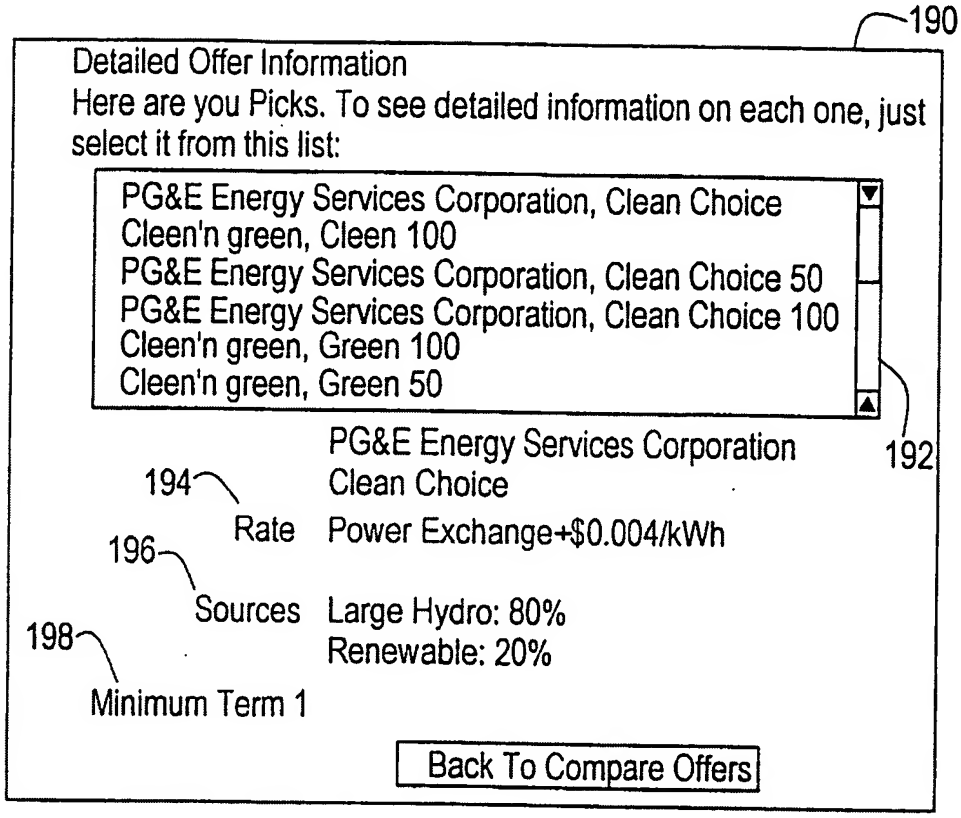

190
Detailed Offer Information
Here are you Picks. To see detailed information on each one, just select it from this list:
PG&E Energy Services Corporation, Clean Choice
Cleen'n green, Cleen 100
PG&E Energy Services Corporation, Clean Choice 50
PG&E Energy Services Corporation, Clean Choice 100
Cleen'n green, Green 100
Cleen'n green, Green 50
192
PG&E Energy Services Corporation
194
Clean Choice
Rate
Power Exchange+$0.004/kWh
196
Sources
Large Hydro: 80%
Renewable: 20%
198
Minimum Term 1
Back To Compare Offers

FIG. 7

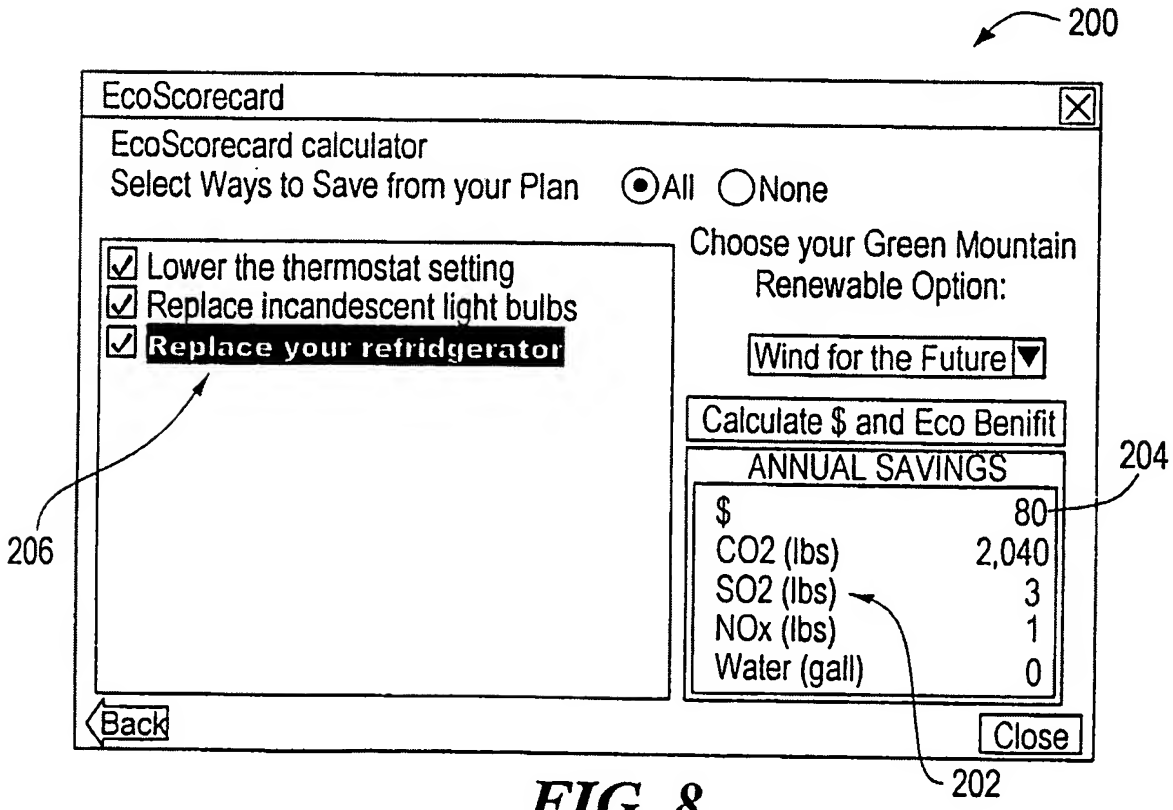

200
EcoScorecard
EcoScorecard calculator
Select Ways to Save from your Plan
All
None
Lower the thermostat setting
Replace incandescent light bulbs
Replace your refridgerator
206
Choose your Green Mountain Renewable Option:
Wind for the Future
Calculate $ and Eco Benifit
ANNUAL SAVINGS
204
$ 80
CO2 (lbs) 2,040
SO2 (lbs) 3
NOx (lbs) 1
Water (gall) 0
202
Back
Close

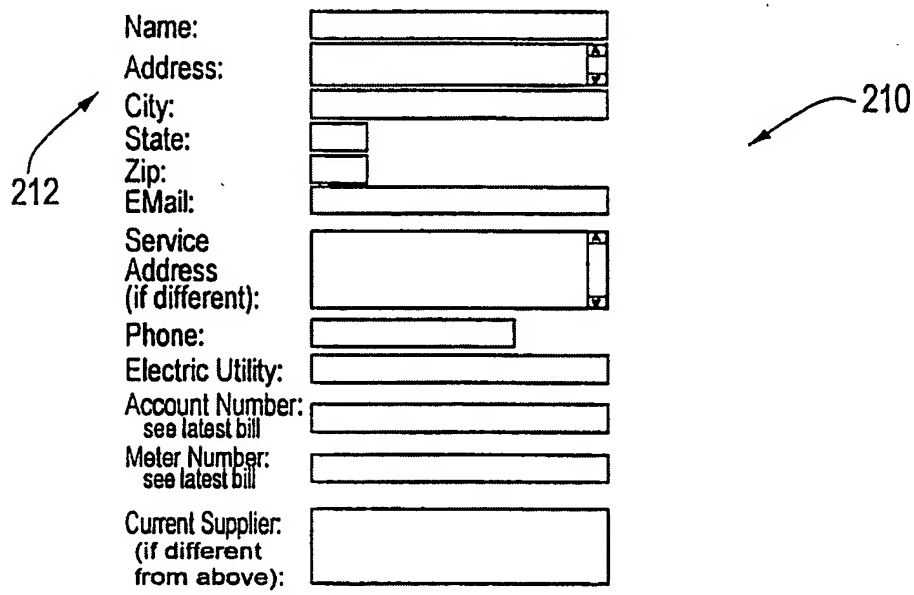
FIG. 8

You have selected the option of signing up for the Eco Smart with Green Mountain Energy Resources. If that is not what you want to do, you can hit the Back button and go back to the screen you came from.

If you wish to proceed, fill out the form below and push the "sign me up for service" button. You will receive confirmation of your enrollment in the mail.

You can sign up by phone by calling: 1-888-Choose-0 (246-6730)
You can sign up by faxing this form to: (802) 649-1839

Please review the Terms and Conditions of the Green Mountain Energy Resources offer below before you sign up for service.



Do you want a single bill sent by your utility or separate bills from the utility and the supplier?

- ◉ Single bill
- ○ Separate bills

By submitting this form I am requesting that Green Mountain Energy Resources provide me with Eco Smart service. I accept the terms and conditions as set forth here. I understand that at the conclusion of the minimum term agreed to here, if any, I am free to switch to another retail energy company.

Sign me up for service

View Terms and Conditions

FIG. 9